

REMARKS

Claims 1, 3 – 5 and 7 are pending and under consideration in the above-identified application.

In the Office Action, Claims 1, 3 – 5 and 7 were rejected.

In this Amendment, Claims 1, 3, 5 and 7 are amended, and Claim 8 has been added. No new matter has been introduced as a result of this Amendment.

Accordingly, Claims 1, 3 – 5 and 7 – 8 are at issue.

I. 35 U.S.C. § 112 Rejection of Claims

Claims 1 and 5 are rejected under U.S.C. § 112, second paragraph, as being indefinite for Failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

As required by the Examiner, Applicant has appropriately amended Claims 1 and 5. Accordingly, Applicant respectfully requests that this claim rejection be withdrawn.

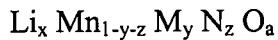
II. 35 U.S.C. § 102(b)/103(b) Rejection of Claims

Claims 1 and 5 were rejected under 35 U.S.C. § 102(b)/103(b) as being anticipated by Fukai et al. (“Fukai”) (JP 2001-122628).

Claim 1 is directed to a cathode material. The cathode material comprises a complex oxide including lithium (Li), manganese (Mn), chromium (Cr) and at least one kind selected from the group consisting of titanium (Ti), magnesium (Mg) and aluminum (Al). The composition ratio of lithium to the total of manganese, chromium, titanium, magnesium and aluminum in the complex oxide is larger than 1 in molar ratio, and the complex oxide is represented by a chemical formula $Li_a Mn_b Cr_c M_{1-b-c} O_d$ (where a is one of 1.4, 1.5, 1.55 and 1.6 and the values of b, c, and d are within the ranges of $0.5 < b+c < 1$, $1.8 < d < 2.5$, and M is at least one kind of element selected from the group consisting of titanium, magnesium and aluminum).

That is, the complex oxide is represented by a chemical formula $\text{Li}_a \text{Mn}_b \text{Cr}_c \text{M}_{1-b-c} \text{O}_d$ where a is equal to 1.4, 1.5, 1.55 or 1.6 and the values of b, c, and d are within the ranges of $0.5 < b+c < 1$ and $1.8 < d < 2.5$.

In contrast, Fukai teaches that a lithium-manganese multi-component oxide as having the following formula:



where x, y, z, and a satisfy $0.8 \leq x \leq 1.2$, $0 < y \leq 0.2$, $0 \leq z \leq 0.2$ and $1.8 \leq a \leq 2.3$. That is, x is limited to be equal to or less than 1.2.

Thus, Claim 1 is patentable over Fukai.

Claim 5, which has been amended in a similar fashion to Claim 1, is also patentable over Fukai, for at least the same reasons.

Accordingly, Applicant respectfully request that these claim rejections be withdrawn.

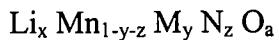
III. 35 U.S.C. § 103 Obviousness Rejection of Claims

Claims 3, 4 and 7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Fukai.

Claim 3 is directed to a cathode material. The cathode material comprises a complex oxide including lithium (Li), manganese (Mn), chromium (Cr) and at least one kind selected from the group consisting of titanium (Ti), magnesium (Mg) and aluminum (Al). The composition ratio of lithium to the total of manganese, chromium, titanium, magnesium and aluminum in the complex oxide is larger than 1 in molar ratio, and the complex oxide is represented by a chemical formula $\text{Li}_{1+e} (\text{Mn}_f \text{Cr}_g \text{M}_{1-f-g})_{1-e} \text{O}_h$ (where M is at least one kind of element selected from the group consisting of titanium, magnesium and aluminum, and e is equal to 0.4 and the values of f, g and h are within the ranges of $0.2 < f < 0.5$, $0.3 < g < 1$, $f + g < 1$ and $1.8 < h < 2.5$).

That is, the complex oxide is represented by the formula $\text{Li}_{1+e} (\text{Mn}_f \text{Cr}_g \text{M}_{1-f-g})_{1-e} \text{O}_h$ where e is equal to 0.4 and the values of b, c, and d are within the ranges of $0.5 < b+c < 1$ and $1.8 < d < 2.5$. As such, the $1+e$ composition of lithium is equal to 1.4.

In contrast, as stated above Fukai teaches that a lithium-manganese multi-component oxide as having the following formula:



where x, y, z, and a satisfy $0.8 \leq x \leq 1.2$, $0 < y \leq 0.2$, $0 \leq z \leq 0.2$ and $1.8 \leq a \leq 2.3$. That is, x is limited to be equal to or less than 1.2.

Thus, Claim 3 is patentable over Fukai.

Claim 7, which has been amended in a similar fashion to Claim 1, is also patentable over Fukai, for at least the same reasons.

Claim 4 and new Claim 8 recite the same distinguishable limitations as those of Claims 1 and 3, respectively. As such, Claims 4 and 8 are each patentable over Fukai, for at least the same reasons.

Accordingly, Applicant respectfully request that these claim rejections be withdrawn.

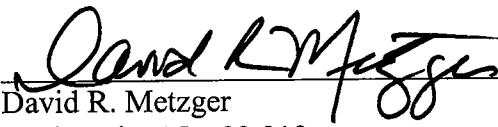
IV. Conclusion

In view of the above amendments and remarks, Applicant submits that Claims 1, 3 – 5 and 7 – 8 are clearly allowable over the cited prior art, and respectfully requests early and favorable notification to that effect.

Respectfully submitted,

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